small district of Tamil Nadu, altogether covering 2543 sq. km. This is the homeland of the Badaga, Toda, Kota and Kurumba communities; nowadays numerous other peoples also live there.

The plateau is generally in the elevation of 2000–2500 m., and one peak, Doddabetta, among the highest in peninsular India, reaches 2633 m. In contrast to this the western quarter of the district averages around 1000 m. in elevation and forms a major portion of the Wainad Plateau. The main indigenous communities there are the Panias, Kurumbas, Nayakas and Chettis, but there are also a few Badagas (Wainad Gaudas) and Kotas.

The escarpment of the Nilgiri Plateau falls away very steeply, and on the eastern edge actually drops some 2000 m. in about 3 km. These slopes always have been covered in dense subtropical jungle which harbours tigers, leopards, buffaloes, elephants, snakes and malarial mosquitoes, and formerly dangerous hunting tribes still feared for their sorcery. Until the advent of the British early in the nineteenth century the three communities living on the summit of these hills—Badagas, Kotas and Todas—were therefore extremely isolated.

The undulating, unevenly wooded downland making up the entire plateau experiences considerable variation in rainfall. The Nilgiris receive from 60 to 160 inches of rain annually, depending on the topographical aspect. Western parts of the plateau rely mainly on the southwest monsoon in July and August; the eastern parts derive much of their rain from the northeastern monsoon in October-December. The average mean daily temperature in the centre of the plateau is around 15°C, while in the Wainad the climate is much hotter and wetter.

For the mildly invigorating qualities of its climate the plateau is therefore scarcely rivalled anywhere in the Asian tropics, and from 1819 British residents began to take advantage of this healthful region. Soon the towns of Coonoor, Kotagiri and Ootacamund (the district headquarters), and the military station at Wellington, took shape and expanded. More recently the town of Gudalur (Gudalu:ru) has grown up in the Wainad, at the foot of the western escarpment. Ootacamund, Coonoor and Gudalur are now the headquarters of the three administrative divisions or *taluks* into which the district was divided by the British.

THE NILGIRI POPULATION

When the British began to settle on the plateau they brought with

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without some further notes on body ornaments. Men as well as women usually wear gold earrings, which are still made from melted gold sovereigns. Women also have gold nose-rings, always worn in the left nostril. Gold, silver or brass armlets may be worn by women just above the right elbow. Numerous silver, gold or glass bangles will be on the wrists; men too wore a silver bangle and silver or copper toe-rings until 50 years ago. Silver or steel rings are worn on the fingers of both sexes (Thurston 1909: 81-82). Necklaces of great variety are also favoured by girls. In general, where gold ornaments are too costly women wear them in filagree silver, brass, copper, iron or steel instead (Grigg 1880: 220). Badagas believe that if a person wears gold, the length of his lifetime will be greater. One might think that wearing gold invited theft; but in fact it seems that this did not often occur amongst the Badagas. Throughout the nineteenth century men, when travelling from village to village, carried a walking-staff with a small axe-head in lieu of the handle, for protection. When however they were to walk to the plains on a trading expedition (prior to 1825) they would first divest themselves of all ornaments, including even their silver waist-bands and any richly made cloak. They were clearly very afraid of brigands, even though they travelled in a group of up to 100 men.

This still does not complete the list of ornaments, however. Priests wear a silver ring during each festival. Some of the headmen wear gold or silver "rings of office" on their fingers, given to their ancestors by East India Company officials or even earlier chieftains of Mysore. The headman of Ke:ti wears one called *sinaganige*, which his ancestor seems to have taken from another Badaga headman after a hand-to-hand fight. It is now worshipped in his home every Monday. Such rings can always be given as security against a fine, and are conventionally worth 1,000 rupees in gold coins. Women who go barefoot — still the great majority today — wear silver rings on three or four toes of each foot. (In Southern India slippers are associated mainly with Muslim women and Hindu dancing girls.)

Until about 1930, it was the custom for men to carry non-collapsible umbrellas made of palm leaves on a cane frame. (Such umbrellas can still be seen in Kerala occasionally.) Since the Nilgiri Plateau is very wet for a part of the year (roughly 20 ins. in May-July, and another 30 ins. the rest of the year), these or their more recent Western equivalents often substitute for a walking stick. Until very recently it was thought disrespectful to the men for women to carry

175 British early in the 19th Century, therefore, the three communities — Badagas, Todas and Kotas — who inhabited the summits of these hills were extremely isolated, and nobody had ever made an effective military conquest of their homeland. With much trepidation a party of the tribal people would venture down to the plains once a year on a trading expedition; but despite this they believed that they were inhabiting a world a little more than a hundred miles square — and so far as their external social contacts were concerned this was quite true.

• 132 The undulating, unevenly wooded downland which makes up the entire plateau experiences considerable variation in rainfall. The Nilgiris receive from 60 to 160 inches of rain annually, depending on the topographical aspect. The western parts of the plateau rely mainly on the southwest monsoon in July-August; whereas the eastern parts derive much of their rain from the northeastern monsoon in October-December.

The average mean daily temperature in the center of the plateau is around 60°F, while in the Wynaad it is much hotter (and also much wetter). For equability of temperature and for its mildly invigorating qualities the plateau is therefore scarcely rivaled anywhere in the tropics; whereas the Wynaad becomes severely hot in summer, is much less healthy, and is prey to a virulent type of malaria (Arputhanathan 1953: 1-3).

175 177 From the year 1820 the British residents began to take advantage of this healthful setting, and so the towns of Coonoor, Kotagiri and Ootacamund (the District headquarters), as well as the military cantonment of Wellington, gradually took shape and grew. More recently the town of Gudalur has grown up in the 631 Wynaad, at the foot of the escarpment. Ootacamund, Coonoor and Gudalur are now the headquarters of the three administrative regions or taluks into which the

6: Noble K-4,5 (1962-1963) 1989
(1800-1963)

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Kota AW55
Kurumba AW56
Toda AW60
Madras Tribes AW63
Kasuva

133 elevations are associated with slops of land to the eastward flowing Kabbani River, a tributary of the Cauvery. In portions of the Wynaad Plateau where drainage is poor, many swamps were formed in the valleys between hills. The Mysore Plateau, bordering the Mysore Ditch, extends eastward to the Biligiri Rangan Hills and other Eastern Ghats ranges (Figures 1 and 3).

Because the discontinuous Eastern Ghats Charnockitic mountains are lower than those of the Western Ghats, and the Central Plain next to the mountains lies at an elevation of over 1,000 feet, the eastern edge of the Mysore Plateau in some places drops off gradually to the Central Plain. This plain, sloping gently eastward from the Nilgiri massif, has a flat surface occasionally interrupted by granitic hills. The Bhavani and Noyil rivers flowing across the Central Plain eventually join the eastward flowing Cauvery. From the southwestern Nilgiris, mountain ranges rising no higher than 6,550 feet run southward to the Palghat Gap, which is the most prominent gap in the mountains of peninsular India. Very flat to hilly plains in Malabar, west of the Nilgiri massif and Western Ghats ranges, generally lie below 500 feet. However, between the westward flowing Beypore and Ponnani rivers there is a higher hilly plain interrupted by several Charnockitic peaks rising above 1,500 feet.

2. Climate

• 132 The Nilgiri and adjacent regions are influenced by four general seasons--1) the drier season extending from December through March; 2) the hot season with mango showers in April and May; 3) the wet

6: Noble K-4,S (1962-1963) 1989
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• 132 westerly monsoon season in June, July, and August; and 4) the wet easterly monsoon season in September, October, and November. Easterly winds predominate over most areas during the drier season, and there is a distinct rainfall deficiency everywhere. Lowest annual temperatures are recorded in the first two months of this season, but general warm-up takes place by the end of it. April and May are the hottest and most depressive months for humans. Atmospheric convective activity, growing in March, increases during April-May, and in mountainous areas winds are forced aloft. Storms resulting from convective activity plus orographic influences produce showers called "mango showers," and in April-May thunderstorm frequency reaches a peak for the year. By June winds have shifted, and then continue to blow from a predominantly westerly direction through August. While westerly winds blow, heavy monsoonal rains usually fall on Malabar plus Western Ghat slopes and crests. Although some easterly areas receive very little precipitation, all are subject to some rainfall during this season. Due to extensive cloud cover and rains, temperatures are everywhere somewhat lower during the westerly monsoon. In September easterly winds predominate again and bring easterly monsoon rain until December. October is usually the rainiest month in this season. The Central Plain and easterly slopes receive their heaviest rainfall during the easterly monsoon season, but more westerly mountainous areas and Calicut on the Malabar coast may in this season receive more rainfall than places on the Central Plain.

A west-east rainfall spectrum (Figure 4) shows that 1) mountainous areas receive more rainfall than adjacent plains, 2) areas

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5: Hockings E-5 (1962-1963) 1989
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DIAGRAM II: MAP OF THE NILGIRI PLATEAU

6: Noble K-4,5 (1962-1963) 1989
(1800-1963)
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Kurumba AW56
Toda AW60
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Kasuva

• 132 west of the western Nilgiri Kundah ranges receive more annual rainfall than areas to the east, and 3) westerly monsoons dominate in western areas, while easterly monsoons dominate over the Central Plain and eastern Nilgiri slopes.[2] In places tending toward aridity, such as Satyamangalam on the Central Plain, mango showers are a vital source of moisture. Taking yearly rainfall into consideration, Calicut on the Malabar Coast receives over 100 inches, whereas Satyamangalam on the Central Plain receives about 25 inches (for locations refer back to Figures 1 and 3). Vayatri, on the edge of the Wynaad Plateau and at the head of a valley up which westerly monsoon winds are funneled, receives over 200 inches. In contrast, Kotagiri, at higher elevation and in one of the rainiest areas on eastern Nilgiri slopes, receives less than 70 inches. Gudalur, below the Nilgiri massif and on the edge of the Wynaad Plateau, receives about 90 inches. Nedivattam, on the edge of the Nilgiri massif above Gudalur, receives about 100 inches. In contrast, Kodanad on the eastern edge of the Nilgiri massif, receives less than 60 inches. Ootacamund, with a central location at over 7,000 feet, receives less than 60 inches, but benefits from both monsoons.

Monsoon regions characteristically show fluctuations in rainfall received from one year to the next. In a period ranging from 1881 to 1940 at Calicut and Coimbatore, and 1901 to 1940 at Ootacamund, there were years during which no rain fell in December, January, February, and March (Figure 4). Calicut had in some years received no rain during April and November. Coimbatore had sometimes received no rain during April, August, September, and October. The mean July

6: Noble K-4,5 (1962-1963). 1989
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132 rainfall at Calicut was 32.46 inches, but in 1918 only 7.09 inches fell during this month, whereas in 1937 rainfall for the month amounted to 59.21 inches. At Coimbatore mean October rainfall was 6.31 inches, but rainfall during this month varied from zero in several years to 16.25 inches in 1930. At Ootacamund mean July rainfall was 8.36 inches but this month's rainfall fluctuated from 1.94 inches in 1917 to 25.08 inches in 1903. Mean October rainfall at Ootacamund was 7.98 inches, but rainfall during that month varied from 1.97 inches in 1938 to 13.46 inches in 1939.

As one ascends the mountains temperatures naturally become lower. Although snow has never been recorded on the Nilgiris, frost occurs quite frequently during the dry season. At Nanjanad, in a period extending from 1930 to 1954, there was an average of four frost-days in November, nine frost-days in February, and three frost-days in March (Balasubramanian and Bakthavathsala 1956: 404). It is no wonder that English colonials once made the Nilgiris a resort area and governmental center during the hot season, for the climate on the massif's summit (Koeppen-Cwbig) is similar in many ways to that of England. According to Koeppen, Malabar has a monsoon climate (Amig) and the Central Plain has a tropical steppe climate (BSh). There are thus noticeable climatic differences between the Malabar coast and Central Plain.

3. Soils

134 Remnant hills in Malabar are frequently covered by laterites resulting from intensive weathering and soil formation extending over

137 If imported species continue to be planted, they may some day be the dominant vegetative forms on the upper Nilgiris.

Temperate grassland formation. Annual fires set by men have
137 certainly contributed to grassland formation on the upper Nilgiris.
318 There is much historical evidence for the burning of old, tough, dried grasses to promote the growth of young, tender grass more edible for livestock (Appendix C). Badagas, Kotas, Todas, Cannarese, Malayalees, and Tamilians inhabiting the upper Nilgiris still burn grasses annually. Firing of grasslands is such a deeply ingrained practice that the Madras Forest Department encounters many difficulties in trying to enforce laws to protect forested or planted tracts. A record dating to A. D. 1117 contains the earliest mention of a Nilgiri ethnic group (Derrett and Duncan 1957: 47). The Todas referred to were in all likelihood pastoralists who fired grasses annually. If one thinks in terms of grasslands being burned over annually for centuries and possibly millennia, it is not difficult to envision grasslands expanding at the expense of adjacent forests. Every time flames cross grassy areas and reach shola edges they do some damage to trees. In turn, damaged trees are more easily attacked by diseases and insects. Slowly, through the years, trees along shola edges perish and grasses can then advance a little more.

Terrain on the upper Nilgiris is conducive to fire spread, for
133 the region is characteristically eroded into rounded highland hills
(134) and mountains. Whenever forests are destroyed, sheet erosion removes
• 132 soil, and relief features then tend to become more rounded. Although

6: Noble K-4,5 (1962-1963) 1989
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132 winds blow with highest velocities during easterly and westerly monsoons, those in the dry, grass-burning season blow long and steadily enough to fan flames over the undulating terrain. Surface configuration plays a vital role in the eventual highly uneven distribution 137 of grasslands and sholas (Plate IV; A, B, and C). In a section where disturbance is negligible, shola may stretch across large expanses between two streams (interfluvial shola). With increased disturbance, grassland spreads between stream courses. When flames reach valley edges, downward slope halts or slows their spread sufficiently to enable shola survival in valleys. Sholas will eventually be located mainly in valleys and may then form a dendritic pattern (dendritic shola). The importance of surface configuration is also revealed by the fact that small sholas (patch sholas) manage to exist in interfluvial depressions where vegetation is protected from upward moving flames. If fires through time are able to change vegetation on the landscape, one would suspect that they could ultimately produce grasslands in depressions and valleys. In the Nilgiris such is apparently the case, for occasional valley bottoms and adjacent hillsides are almost entirely in grass. Where such extreme changes have occurred, streams may become intermittent.

137 318 Not all grasslands were slow to form; some grassy tracts probably came into existence within a decade. Todas long have employed axes to fell trees, so they could obtain planks for hut construction, logs and branches to build fences, or firewood to heat food, produce (241) warmth, and cremate their dead. Badagas, Kotas, and more recent migrants to the Nilgiris cleared large tracts for crop production, and

6: Noble K,-4,5 (1962-1963) 1989
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CHAPTER VI

NILGIRI WYNAAD BADAGAS AND KOTAS

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The few scattered Badaga communities in the Nilgiri Wynaad have resulted from slow and continuing Badaga colonization which may extend back to a pre-1800 date. The ancestors of Kotas occupying a single hamlet probably came to serve the Todas who once lived in the Wynaad. Although Nilgiri Wynaad Badagas and upper Nilgiri Badagas are culturally affiliated, the occupance patterns related to them vary (Table IV). Several factors are responsible for the variations: Because the Wynaad is covered by a plateau with rolling hills and occasional ranges, topographic conditions are ideal for growing wet rice in broad valleys and dry field crops on hills. The climate is warm enough to permit the growth of wet rice, but too dry for two rice crops to be harvested annually from a single field. Dry seasonal conditions, reflected by estivating trees, also lead to the growth of only one dry field crop per year. Combined with the physical influences are the Malabarian, Malayalee cultural influences. Thus, Badaga house construction, employment of Paniya laborers, garden maintenance, and manner of wet rice cultivation with aid of implements drawn by buffaloes follow patterns associated with their neighbors. Kalac Kotas at Gudalur, who live in atypical houses and have lost their dry fields, continue to cultivate wet rice in the same manner as the Badagas. Nilgiri Wynaad Kota trades are similar to those of upper Nilgiri Kotas.